

OCCUPATIONAL ILLNESSES AND INJURIES DUE TO EXPOSURE
TO PROPARGITE AS REPORTED BY PHYSICIANS IN CALIFORNIA
IN 1979

By

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SUMMARY

There were 90 cases of occupational exposure to pesticides containing propargite reported by California physicians in 1979. Of this total, 5 cases were reported as systemic illnesses, 22 cases as eye injuries, 58 cases as skin injuries, and 5 cases as skin and eye injuries. According to the Department's Annual Pesticide Use Report for 1979, a total of 2,025,949 pounds of propargite was reported as applied in California. It is estimated that at least another half-million pounds of propargite were in formulations applied by growers which did not have to be reported on use reports since products containing propargite were not restricted materials. The exposures leading to reported injuries occurred during mixing, loading, and application of products containing propargite. Field workers entering grape vineyards a few days after application also were at risk. The major problem product was Omite 30W.

CASE STUDIES

Ground Applicator - 38 cases

- Systemic Illnesses

An applicator complained of a headache and upset stomach while spraying crops with Omite. The symptoms subsided when he stopped spraying. He developed a red flare type of rash over the arms, upper chest, and down one leg. No days were lost from work.

A worker did not wear safety equipment when mixing, loading, and applying Omite 30W. He had been trained in the use of pesticides and safety procedures, but failed to abide by them. He developed a headache, a swollen throat, and a rash. It was not known if any time was missed from work.

- Eye Injuries

An applicator was applying a wettable powder formulation of Omite 30W on almonds. He was wearing all required safety equipment; however, some material got in his eyes. He was off work for 10 days.

An applicator had been spraying grapes all day with Omite 30W. The next day, his eyes started to bother him. He lost 7 days of work.

A spray rig driver repeatedly wiped perspiration from his face and eyes while spraying Omite 30W on grapes. His eyes became irritated, and progressively worsened. He had applied sulfur to grapes prior to working with Omite. He has a history of having an allergy to weeds and sulfur. He lost 4 days of work.

While spraying an almond orchard with Omite 6E, an applicator experienced burning and itching in his eyes. It is suspected that he either rubbed his eyes or did not wear the goggles supplied by his employer. He was off work 3 days.

An applicator was spraying Comite on cotton when the spray blew in his eyes. He reportedly wore only coveralls for protection and was not wearing goggles. He lost 2 days of work.

While an applicator was spraying cotton, wind blew Comite spray into his eyes. It was not confirmed whether or not he wore protective equipment. Also, it was not known if any time was lost from work.

An applicator reported getting Omite in both eyes. The circumstances of the exposure and the disability status were unknown.

An applicator complained of irritation in both eyes while he was spraying Omite 30W on grapes. He was treated by a physician and released. He lost no time from work.

An applicator received spray drift in his eyes while treating grapes with Omite 30W. The employee was not wearing a face shield or goggles. No time was lost from work.

An applicator was working with Comite on cotton when the wind blew spray in his face and into his eye. It was the last working day for the season; therefore, he did not lose any time from work.

An applicator was spraying Omite 30W on almonds when the wind blew it into his eye. It was not known whether protective equipment was worn or if any time from work was lost.

- Skin Injuries

An applicator was applying Omite 30W with a speed sprayer and apparently some pesticide drifted onto his face and neck. He had been working with pesticides for 4 years, and was very conscientious around them. He reportedly wore coveralls and rubber gloves. The estimated period of disability was 8-12 days as determined by the physician at the initial visit.

An applicator developed a rash on his arms and legs following application of Omite 30W on grapes. He wore coveralls and gloves, and could not explain how the exposure occurred. He was off work 5 days.

An applicator was spraying Comite on cotton and developed contact dermatitis. He reportedly wore only coveralls for protection. He lost 5 days of work.

An applicator was driving a ground rig applying Comite to cotton. Some spray got on his arm, and he developed dermatitis. He was wearing gloves, but his coverall sleeves were rolled halfway up his arm. He presumably mixed and applied the pesticide. A closed system was reportedly used. He did not lose any time from work.

An employee mixed, loaded, and applied Omite 30W on grapevines. He wore all the required protective clothing and, therefore, was unable to explain his exposure, which resulted in dermatitis on both arms. No time was lost from work.

A worker was mixing, loading, and applying Omite 30W and wettable sulfur to grapevines. He developed a rash on both arms. It was not known what protective equipment he wore at the time of the exposure. He did not miss any time from work.

A mixer/loader/applicator developed dermatitis on his arms, neck, and face after spraying Omite 30W on grapes. Details of the incident were not known. No work time was lost.

While applying Omite 30W to grapes, an applicator developed a rash on his arms, neck, and torso. He was using all safety equipment and could not explain how the exposure occurred. He was off work for 3 days.

An applicator developed a rash on his arms, neck, and face while spraying an orchard with Omite 30W. It was not known if protective equipment was used. He lost 3 days of work.

An applicator was spraying vines with Omite 30W off and on for a 3-week period. He developed a burning and itching sensation on his neck and in his eyes. He was off work for 2 days.

An applicator was spraying Omite 30W for 2 days when he noticed a rash on his neck. He wore coveralls and said he used a respirator while spraying. Two days of work were lost.

An applicator was driving a spray rig, applying Comite. Later in the day his face began to swell and his skin began to blister. It was not known if safety equipment was used. He did not miss any work.

After using Omite 30W for 3 days, an applicator developed a severe burning and itching sensation in his neck area. The circumstances of the exposure were not reported. He did not miss any work.

An applicator developed a rash around his eyes and on his throat. He had been applying Omite 30W for 3 days. He wore all the necessary safety equipment; however, at the end of each day, he did not use soap when he showered. He lost no time from work.

A mixer, who also applied Omite 30W, was exposed during the application process. He developed dermatitis on his right arm. It was not known if safety equipment was used or if any time from work was lost.

An applicator was spraying vineyards with Omite 30W. He developed a rash on his neck and arms and around his eyes. It was not known if safety equipment was used. He did not lose any time from work.

While spraying grapes with Omite 30W, some spray drifted back onto the applicator, resulting in a rash on his arms and neck. He wore all his protective equipment while he was applying the pesticide. No time was lost from work.

An applicator developed a rash on his hands, wrists, face, and neck after spraying Omite 6E on almonds. It was not known if safety equipment was used. He did not miss any work.

An applicator noticed itching and burning on his forearms after he had been spraying Omite 30W on grapes for 2 days. He was wearing all safety equipment. The employee's training records were complete. No time was lost from work.

A rash developed on the insides of both arms of an applicator after he sprayed an almond orchard with Omite 30W. He reportedly wore coveralls and gloves. He also reported that he made minor repairs on equipment. It was not known if time was lost from work.

An applicator developed a rash on his neck and both of his arms. He was spraying crops with Comite. It was not known if time was lost from work or if safety equipment was used.

A worker who mixed, loaded, and applied Comite noticed a rash on his neck at the end of the work day. He reportedly used a closed system when mixing, and wore all his protective clothing during application. It was not known if time was lost from work.

- Skin and Eye Injuries

An applicator received spray drift on his face while applying Comite to corn. The exposure resulted in topical skin burns and eye irritation. After he was verbally instructed on the safe use of Category I materials, the employee stated he mixed, loaded, and applied the material. He did not have access to a closed mixing system and, therefore, hand-poured the material. He reportedly wore coveralls and gloves throughout the day. He was off work for 3 days.

After spraying a field with Omite 30W, an applicator developed a swollen ear and eye. It was not known if safety equipment was used. No days were lost from work.

An applicator was spraying grapes with Omite 30W. He developed a rash on his hands and body, and had swollen eyes. It was not known if safety equipment was used or if any time was lost from work.

Mixer and Loader (aerial application) - 3 cases

- Skin Injuries

When a mixer was putting a closed mixing system probe into a container, he accidentally spilled some Comite on the ground. He was wearing his protective clothing; however, some Comite still sprayed on him when the plane took off. He developed dermatitis on his neck and forearms. He lost no time from work.

A mixer received a burn on his arm while mixing and loading Comite. A closed system was used. However, it was not known if any other safety equipment was used or if any time was lost from work.

While loading Omite 30W, a mixer developed a burn on the right side of his neck. It was suggested that he may have rubbed his neck with his gloves on. It was not known if time was lost from work.

Mixer and Loader (ground application) - 19 cases

- Eye Injuries

As an employee was loading a spray tank with Omite 30W and Guthion, Omite blew under his face shield into his eyes while he was standing over the agitator. He immediately flushed his eyes with water from the portable facilities provided; however, he still developed irritated, red eyes. Full protective gear was reportedly supplied and worn. He lost 1 day of work.

While a mixer was mixing Omite 6E, foam from the tank blew into his eyes. He did not wear his face shield. He was off work 2 days.

Upon opening a container of Comite, some of the chemical splashed into a mixer's eyes. He developed mild conjunctivitis. It was not reported if a closed system was used. It was not known if time was lost from work.

A mixer was helping a tractor driver load a mix tank when he was exposed to Omite 30W. The mixer handed the driver the full 5-pound bags of the material, who in turn emptied the contents into the tank. As he did so, some splashed back and hit the mixer in his eyes. The mixer had been provided with goggles, but did not use them. He did not lose any time from work.

A mixer accidentally had some mixed Omite 30W splash into his eyes and, instead of washing them, he proceeded to rub his eyes. His eyes became irritated and red. He was not wearing a face shield. His disability status was unknown.

While a mixer was loading a spray rig with Omite 30W, some material got into his eyes, resulting in conjunctivitis. He did not wear a face shield while mixing or loading. He was treated by a physician and released. No time was lost from work.

- Skin Injuries

A mixer developed burns on his neck, shoulders, and arms after working with Comite. A closed system was used, and he reportedly wore all his protective clothing. It was suggested that he was exposed while he removed and put on his protective clothing, but it was not confirmed. He was off work 3 days.

While mixing Omite 30W to be applied on almonds and grapes, a worker developed burns on his arm, stomach, and neck. He stated that he wore all the protective clothing, but Omite still got on him. He missed 2 days of work.

While mixing and loading Omite 30W, a worker got some of the material on his forearms and upper torso. He had his coveralls unzipped due to the extreme heat of the day. He did not miss any time from work.

An employee was exposed to Omite 30W when he helped mix the material. It was a hot day, and he had his sleeves rolled up while working with the Omite. He developed a rash on his forearms. He reportedly wore coveralls and a face shield, but did not wear gloves. He was treated by a physician and released, and returned to work. No work time was lost.

A worker was mixing Omite 30W when he dropped a bag into the mix tank by mistake. He then stuck his arm into the tank to retrieve the bag and in doing so, his arm was exposed. He developed a rash on his arm. He reportedly wore gloves, coveralls, and a face shield. He was treated by a physician and released, with no time lost from work.

A mixer reported local rashes and itches. He could not explain his exposure. A closed system was used for Omite 6E, and all the protective clothing was worn. His training records were complete. He lost no time from work.

A worker delivered Omite 30W from pesticide storage to the work site. He unloaded bags of Omite, and opened them for the mixer. Although he did not load the material into the mix tank, he did open the bags, resulting in his subsequent exposure. He wore coveralls and gloves; however, he developed a rash on his stomach. He stated he had a past history of an allergy to propargite. He did not miss any time from work.

Two mixers reported dermatitis on their forearms, upper chests, and necks after working with Omite 30W. The circumstances of the incidents were not known.

An employee who was working as a nurse rig driver broke out in a rash while working with Omite 30W. He was sent to the hospital for treatment. The employee stated he did not spray or mix the material. Also, he stated that he did not get splashed upon or get drift on him. The actual circumstances of the incident could not be confirmed. It was not known if time was lost from work.

After mixing Omite 30W to be used on grape vineyards, a worker noticed a rash on his arms, chest, and abdomen. Safety equipment was required, but it was not known if it was used. He did not miss any days of work.

- Skin and Eye Injuries

Following the mixing and loading of Omite 30W, an employee developed a skin and eye irritation. He was directed to seek medical attention. He indicated he had been careless during the mixing process by allowing the dust to "bounce back up at him" as he emptied the material into the mix tank. The employer stated that he had to consistently remind the employee to use proper procedures when mixing and loading. While working, the employee wore sunglasses rather than standard safety goggles or a face shield. He lost 3 days of work.

A nurse rig driver developed a rash and an eye irritation after working with Omite 30W. He stated that he did not mix the material. It was not known if time was lost from work.

Field Worker - 17 cases

- Systemic Illnesses

Three field workers were removing the stakes in a vineyard. The vines had been sprayed with Omite 30W the day before they started to work, and at the time they started working, the leaves were damp. Within a couple of days, all 3 developed rashes on their upper torsos. They also experienced nausea. It was not known if time was lost from work.

- Eye Injuries

A field worker was working in a vineyard after it was sprayed with Omite. He was putting stakes in places that had been previously sprayed. The following day his eyes were irritated and red. He did not lose any time from work.

- Skin Injuries

Eleven field workers developed rashes on the insides of their arms. They were tying young grapevines. They had been working at this for 5 days or more. The vineyard was sprayed with Omite 30W 6 days prior to the reported date of injury. Sulfur had been applied before the Omite application. One worker missed 7 days of work; he had also developed a rash on his thighs. The remaining 10 workers did not miss any work.

A field worker was working in a vineyard that had been sprayed with Omite. He later developed a rash on his arms. The date of application was 12 days prior to the reported date of injury. He was treated and returned to work. No time was lost from work.

A field worker developed a rash on her arms after working in a vineyard that had been sprayed with Omite. The date of application was not reported. She was treated, but did not miss any time from work.

Tractor Driver/Irrigator - 6 cases

- Skin Injuries

Three irrigators were moving sprinkler pipes and came in contact with cotton foliage. They each subsequently broke out in a rash on both forearms. The cotton had been sprayed with Comite. One worker went into the field the day after application; he lost 4 days of work. The second worker went into the field 2 days after application; he lost 3 days of work. The third worker went into the field 3 days after application; he also lost 3 days of work.

An irrigator developed dermatitis on his legs and arms after checking and working on sprinklers in a cotton field which had been sprayed with Comite 8 days prior to the reported date of injury. He lost 2 days of work.

Another irrigator was checking pipelines in a cotton field previously sprayed with Comite when he came in contact with the cotton foliage. He later developed a rash on both arms. The date of application of Comite to the cotton was 9 days prior to the reported date of injury. He did not miss any time from work.

A worker was irrigating a field that had been sprayed with Comite the previous day. He broke out in an itchy rash. He obtained medical care, and returned to work. It was stated that he had a history of rashes from various sources.

Warehouse/Transportation Worker - 4 cases

- Eye Injuries

In 2 separate incidents, 1 week apart, a worker responsible for driving a nurse rig developed conjunctivitis. He did not know how he was exposed to the pesticide. For the previous 2 weeks he had been transporting Omite. He reportedly did not mix the material. He reportedly wore all safety equipment and washed frequently. The worker stated that he frequently cleaned his goggles because they would continually fog up. He felt that perhaps some Omite may have gotten into his eye when he cleaned his goggles. He lost 2 weeks of work.

A warehouse employee reported that while he was pouring Omite from 1 container into another, some got into his eye. He was treated by a physician for conjunctivitis. He lost 2 days of work.

- Skin Injuries

An employee was in a rush to go home and subsequently began to toss closed containers of Comite onto a trailer. Some Comite spilled onto his neck and wrist. He developed dermatitis. He was treated by a physician and released. No time from work was lost.

Drift - 1 case

- Skin Injuries

A foreman was observing his spray crew apply Comite. He later broke out in a rash. He does not apply pesticides but, rather, he oversees spray applications. He did not lose any time from work.

Cleaner/Repairer - 1 case

- Eye Injuries

A field supervisor was repairing a tractor which had broken down while spraying Comite. It was a hot day and as he wiped perspiration from his eyes, he apparently contaminated them. His eyes became irritated. He received medical treatment, but did not miss any work.

Manufacturing/Formulation Worker - 1 case

- Skin Injuries

An employee working in a manufacturing and formulation plant spilled some Omite onto his thigh. He noticed an irritation a few days later. He lost 4 days of work.

DISCUSSION

During the year 1979, there was a significant increase in the number of reported cases of propargite exposure in comparison with the previous 3 years. There was a total of 90 reported cases in 1979, whereas in 1978, 1977, and 1976, there were, respectively, 50, 50, and 59 reported cases. The greatest increase was seen in eye injuries and skin injuries. There was a total of 111 days reported lost from work; however, no hospitalization was required. One incident resulted in 11 field workers developing skin rashes. These field workers reportedly entered the fields 6 days after the application. Most field workers who developed skin or eye injuries were in the fields within 7 days after the application. The mixer/loaders and applicators collectively reported a total of 60 cases. Almost 30 percent of these cases were eye injuries, and 60 percent were skin injuries. The circumstances leading to the high exposure among mixer/loaders and applicators are not as definitive as for field workers. Some workers did not use specified protective equipment, while others did not report if protective equipment was used or not. An underlying factor of some of the workers' exposure seemed to be carelessness or ignorance of safety procedures. The majority of the exposures appear to have occurred while mixing, loading, and applying the material. A number of workers, whose only job was to open bags of Omite 30W, developed rashes. The use of water-soluble packaging would prove helpful in minimizing exposure of the mixer/loaders. The importance of safety and good personal hygiene practices when working around hazardous materials should be reemphasized by employers in the education of their personnel. For this particular pesticide, training and supervision should be intensified.

Protection of the workers requires the constant practice of good work habits and safety procedures. All safety equipment should be kept clean and made readily accessible to the workers. All clothing should be washed daily. Adequate wash water should be available at the work site. The users should bathe thoroughly at the end of the work shift. Also, all equipment should be periodically inspected to ensure that it is in good operating condition prior to use. Wind conditions should be monitored constantly to minimize drift. Good communication between the employers and employees concerning working procedures such as compliance with reentry intervals, if they are established, and the use of required and/or suggested safety equipment is necessary for a safe workplace.

Table I

Occupational Illnesses and Injuries Due to Exposure
to Propargite as Reported by Type of Injury and
Amount Used in 1979^{1/}

	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>
Systemic Illnesses	5	2	9	7
Eye Injuries	22	11	5	14
Skin Injuries	58	34	36	37
Skin/Eye Injuries	<u>5</u>	<u>3</u>	<u>0</u>	<u>1</u>
Total	90	50	50	59
Amount Used (lbs.) ^{2/}	2,025,949	584,107	836,428	565,867

^{1/} 1978, 1977, and 1976 values included for comparative purposes.

^{2/} Usage reported according to the California Department of Food and Agriculture's Annual Pesticide Use Reports.

Table II

Occupational Illnesses and Injuries Due to Exposure
to Propargite as Reported by Type of Illness and
Disability Status in 1979

<u>Days of Disability</u>	<u>Injury Type</u>				<u>Total</u>
	<u>Systemic</u>	<u>Eye</u>	<u>Skin</u>	<u>Skin/Eye</u>	
0	1	8	34	1	44
1-3	0	5	9	2	16
4-7	0	2	5	0	7
8-14	0	2	1	0	3
unknown	<u>4</u>	<u>5</u>	<u>9</u>	<u>2</u>	<u>20</u>
	5	22	58	5	90

Table III

Occupational Illnesses and Injuries Due to Exposure
to Propargite as Reported by Job Category and
Type of Illness in 1979

<u>Job Category</u>	<u>Injury Type</u>				<u>Total</u>
	<u>Systemic</u>	<u>Eye</u>	<u>Skin</u>	<u>Skin/Eye</u>	
Ground Applicator	2	11	22	3	38
(Possible Mixer/Loader)	(1)	(0)	(6)	(0)	(7)
Mixer/Loader (aerial)	0	0	3	0	3
Mixer/Loader (ground)	0	6	11	2	19
Field Worker	3	1	13	0	17
Tractor Driver/Irrigator	0	0	6	0	6
Warehouse/Transportation Worker	0	3	1	0	4
Drift	0	0	1	0	1
Cleaner/Repairer	0	1	0	0	1
Manufacturing/Formulation Worker	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>
	5	22	58	5	90

Table IV

Occupational Illnesses and Injuries Due to Exposure
to Propargite as Reported by County of Occurrence
in 1979

Contra Costa	2	San Joaquin	1
Fresno	21	Solano	1
Glenn	1	Stanislaus	7
Kern	25	Tehama	1
King	7	Tulare	17
Madera	5	Yolo	1
Merced	1		

Table V

Formulation of Propargite Involved in Illnesses
And Injuries Reported in 1979

<u>Job Activity/Illness</u>	<u>Formulation</u>			
	<u>Omite 30W</u>	<u>Omite 6E</u>	<u>Comite</u>	<u>Unknown</u>
Ground Applicator				
- Systemic	1	0	0	1
- Eye	6	1	3	1
- Skin	16	1	5	0
- Skin/Eye	2	0	1	0
Mixer/Loader				
- Skin	10	1	3	0
- Eye	4	1	1	0
- Skin/Eye	2	0	0	0
Field Worker				
- Systemic	3	0	0	0
- Eye	0	0	0	1
- Skin	11	0	0	2
Tractor Driver/Irrigator				
- Skin	0	0	6	0
Warehouse/Transportation Worker				
- Eye	0	0	0	3
- Skin	0	0	1	0
Drift - Skin	0	0	1	0
Cleaner/Repairer				
- Eye	0	0	1	0
Formulation Worker				
- Skin	0	0	0	1